



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,695	03/29/2004	Daniel J. Marchok	2376.2170-013	8924
57690	7590	08/07/2007		
HAMILTON, BROOK, SMITH & REYNOLDS, P.C.			EXAMINER	
530 VIRGINIA ROAD			YUEN, KAN	
P.O. BOX 9133				
CONCORD, MA 01742-9133			ART UNIT	PAPER NUMBER
			2616	
			MAIL DATE	DELIVERY MODE
			08/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/813,695

Applicant(s)

MARCHOK ET AL.

Examiner

Kan Yuen

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 32-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

Detailed Action

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 42, 46, 48, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Ozaki (Pat No.: 5502749).

In claim 42, Ozaki disclosed the method of recovering a pilot tone sub-symbol (see column 2, lines 55-62). The receiver unit demodulates or recovers the transmission signal or the pilot tone sub-symbol; calculating a parameter value difference between the pilot tone sub-symbol and a consecutive pilot tone sub-symbol (see column 2, lines 65-67, and see column 3, lines 1-2). The phase shift detection unit detects the phase shift difference between the reference signal and the received signal. The phase shift can be interpreted as the difference parameter value, and the received signal can be the pilot tone sub-symbol, and the reference signal can be the consecutive pilot tone sub-symbol; and adjusting a clock signal frequency depending on the parameter value difference (see column 3, lines 6-10). The radio receive unit corrects or adjusts the phase shift of the received signal based on the phase shift detection unit.

Regarding claim 46, Ozaki disclosed the method of the parameter comprises phase (see column 2, lines 65-67, and see column 3, lines 1-2). The phase shift

detection unit detects the phase shift between the reference signal and the received signal. The phase shift can be interpreted as the difference parameter value, and the received signal can be the pilot tone sub-symbol, and the reference signal can be the consecutive pilot tone sub-symbol.

Regarding claim 48, Ozaki disclosed the method of a clock source that recovers a pilot tone sub-symbol (see column 2, lines 55-62). The receiver unit demodulates or recovers the transmission signal. The receiver unit can be interpreted as the clock source; a calculator of a parameter value difference between the pilot tone sub-symbol and a consecutive pilot tone sub-symbol (see column 2, lines 65-67, and see column 3, lines 1-2). The phase shift detection unit detects the phase shift between the reference signal and the received signal. The phase shift can be interpreted as the difference parameter value, and the received signal can be the pilot tone sub-symbol, and the reference signal can be the consecutive pilot tone sub-symbol; and an adjustor of a signal frequency of the clock source depending on the parameter value difference (see column 3, lines 6-10). The radio receive unit corrects or adjusts the phase shift of the received signal based on the phase shift detection unit.

Regarding claim 51, Ozaki disclosed the method of the parameter comprises phase (see column 2, lines 65-67, and see column 3, lines 1-2). The phase shift detection unit detects the phase shift between the reference signal and the received signal. The phase shift can be interpreted as the difference parameter value, and the received signal can be the pilot tone sub-symbol, and the reference signal can be the consecutive pilot tone sub-symbol.

Claim Rejections - 35 USC § 103

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2616

6. Claims 32-35, and 37-40 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takashima (Pat No.: 5708662).

In claim 32, Takashima disclosed the method of generating a plurality of bins, at least one of the bins including a pilot tone sub-symbol; combining the bins into a symbol; and transmitting the symbol (see column 3, lines 32-52, and see fig. 3). A frequency carrier or a bin is subjected or generated to carrier suppression amplitude modulation to combines with a pilot signal, and sub-channel signal to prepare a stereo composite signal. As shown in fig. 3 transmitter 103, the signal is being transmitted to a receiver. Although the reference didn't mention about a plurality of bins, however it's obvious to have plurality of bins or frequency carriers. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the obviousness in the network of Takashima. The motivation for using the obviousness in the network of Takashima being that the system can send plurality of symbols in plurality of bins at the same time.

Regarding claim 33, Takashima disclosed the method of modulating the plurality of bins to a predetermined frequency (see column 3, lines 32-52). FM broadcast wave with a frequency carrier of a predetermined frequency.

Regarding claim 34, Takashima disclosed the method of the predetermined frequency is a frequency suitable for transmission along a transmission medium (see column 4, lines 1-6, fig. 3). The predetermined frequency is suitable for transmission over an antenna 104.

Regarding claim 35, Takashima disclosed the method of the predetermined frequency is a radio frequency (see column 4, lines 39-50). The predetermined frequency is approximately 100Khz, which satisfied for being a radio frequency (3Hz-30Ghz).

Regarding claim 37, Takashima disclosed the method of a generator that generates a plurality of bins, at least one of the bins including a pilot tone sub-symbol; a combiner that combines the bins into a symbol; and a transmitter that transmits the symbol (see column 3, lines 32-52, and see fig. 3). A frequency carrier or a bin is subjected or generated to carrier suppression amplitude modulation to combines with a pilot signal, and sub-channel signal to prepare a stereo composite signal. As shown in fig. 3 stereo modulator 101 can be interpreted as a combiner that combines with signal from L-MSK modulator 107. Transmitter 103 receives signals from FM modulator 102 and transmits the signal to a receiver. Although the reference didn't mention about a plurality of bins, however it's obvious to have plurality of bins or frequency carriers. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the obviousness in the network of Takashima. The motivation for using the obviousness in the network of Takashima being that the system can send plurality of symbols in plurality of bins at the same time.

Regarding claim 38, Takashima disclosed the method of a mixer that modulates the plurality of bins to a predetermined frequency (see column 3, lines 47-52, and see column 4, lines 59-65). The FM modulator 102 performs FM modulation of a predetermined frequency carrier or bin.

Regarding claim 39, Takashima disclosed the method of the predetermined frequency is a frequency suitable for transmission along a transmission medium (see column 4, lines 1-6, fig. 3). The predetermined frequency is suitable for transmission over an antenna 104.

Regarding claim 40, Takashima disclosed the method of the predetermined frequency is a radio frequency (see column 4, lines 39-50). The predetermined frequency is approximately 100Khz, which satisfied for being a radio frequency (3Hz-30Ghz).

7. Claims 36 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashima (Pat No.: 5708662), in view of Suzuki (Pat No.: 5077727).

For claims 36, and 41, Takashima disclosed all the subject matter of the claimed invention with the exception of the predetermined frequency is an optical frequency. Suzuki from the same or similar fields of endeavor teaches the method of the predetermined frequency is an optical frequency (see column 8, lines 16-32). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Suzuki in the network of Takashima. The motivation for using the method as taught by Suzuki in the network of Takashima being that the method will increase the transmission speed between the transmitter and the receiver.

8. Claims 43, 44, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (Pat No.: 5502749), in view of Nakano et al. (Pat No.: 5559789).

For claim 43, Ozaki disclosed all the subject matter of the claimed invention with the exception of recovering the pilot tone sub-symbol comprises adjusting the clock signal frequency so that the pilot tone sub-symbol can be received. Nakano et al. from the same or similar fields of endeavor teaches the method of recovering the pilot tone sub-symbol comprises adjusting the clock signal frequency so that the pilot tone sub-symbol can be received (see column 3, lines 62-67, and see column 4, lines 1-5). The frequency adjustment is used to compensate the phase difference, so that pilot signal can be received correctly. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Nakano et al. in the network of Ozaki. The motivation for using the method as taught by Nakano et al. in the network of Ozaki being that the method will lower the transmission error rate between the transmitter and the receiver.

Regarding claim 44, Nakano also disclosed the method of identifying the pilot tone sub-symbol (see column 4, lines 1-6). The detector 24 detects the frequency offset, where frequency comprises signal or pilot tone sub-symbol.

Regarding claim 50, Nakano also disclosed the method of an identifier of the pilot tone sub-symbol (see column 4, lines 1-6). The detector 24 detects the frequency offset, where frequency comprises signal or pilot tone sub-symbol.

9. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (Pat No.: 5502749), in view of Nakano et al. (Pat No.: 5559789), as applied to claim 44 above, and further in view of Ojanpera et al. (Pat No.: 5703873).

For claim 45, Ozaki and Nakano et al. disclosed all the subject matter of the claimed invention with the exception of scanning a plurality of bins to locate a bin containing the pilot tone sub-symbol. Ojanpera et al. from the same or similar fields of endeavor teaches the method of scanning a plurality of bins to locate a bin containing the pilot tone sub-symbol (see column 4, lines 48-52). The subscriber equipment scans the frequency band or bins to locate the pilot transmission or pilot tone sub-symbol. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Ojanpera et al. in the network of Ozaki and Nakano et al. The motivation for using the method as taught by Ojanpera et al. in the network of Ozaki and Nakano et al. being that the method will increase the accuracy of receiving signals.

10. Claims 47, 49, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (Pat No.: 5502749), in view of Hill et al. (Pat No.: 3795772).

For claim 47, Ozaki disclosed all the subject matter of the claimed invention with the exception of using the clock signal frequency for phase locked loop processing. Hill et al. from the same or similar fields of endeavor teaches the method of using the clock signal frequency for phase locked loop processing (see column 3, lines 9-14). The

Art Unit: 2616

purpose of VCO 12 is to provide a reference frequency, which is phase locked to the clock frequency. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Hill et al. in the network of Ozaki. The motivation for using the method as taught by Hill et al. in the network of Ozaki being that the method will maintains to receive frequency with correct phase.

Regarding claim 49, Hill et al. also disclosed the method of the clock source is a voltage controlled oscillator (see column 3, lines 9-14). The purpose of VCO 12 is to provide a reference frequency, which is phase locked to the clock frequency, so that signal can be received or recovered correctly.

Regarding claim 52, Hill et al. also disclosed the method of a phase locked loop processor that processes based on the signal frequency (see column 3, lines 9-14). The purpose of VCO processor is to provide a reference frequency, which is phase locked based on clock frequency.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chiodini et al. (Pat No.: 5936961), Petit (Pat No. 5253270), and Hotta (Pat No.: 4951279), are show systems which considered pertinent to the claimed invention.

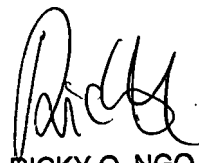
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kan Yuen whose telephone number is 571-270-2413. The examiner can normally be reached on Monday-Friday 10:00a.m-3:00p.m EST.

Art Unit: 2616

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ky



RICKY Q. NGO
SUPERVISORY PATENT EXAMINER